WHAT IS CLAIMED IS:

1. A thin-film deposition system comprising:

a plasma CVD reactor;

a remote plasma chamber arranged outside the plasma CVD reactor, for providing active species to an interior of the plasma CVD; and

an electromagnetic wave generator arranged outside the plasma CVD reactor and the remote plasma chamber, for emitting electromagnetic waves to the interior of the reactor.

2. The system according to Claim 1, wherein the electromagnetic waves are microwaves.

3. The system according to Claim 1, wherein the reactor and the electromagnetic wave generator are connected by a waveguide.

4. The system according to Claim 3, wherein the reactor comprises a sapphire window where the waveguide is connected.

5. The system according to Claim 1, wherein the reactor and the electromagnetic wave generator are connected by a co-axial cable.

6. The system according to Claim 1, further comprising a controller which activates the electromagnetic wave generator only for reactor cleaning.

7. The system according to Claim 1, wherein the electromagnetic wave generator is connected to a side wall of the reactor in a direction perpendicular to an axis of radio-frequency electrodes arranged in the reactor.

8. The system according to Claim 1, wherein the remote plasma generates an inductively-coupled plasma.

9. A method for cleaning a plasma CVD reactor, comprising:

during a cleaning cycle, (i) providing cleaning active species derived from a cleaning gas in the plasma CVD reactor, and (ii) emitting electromagnetic waves, independently of step (i), from an outside of the plasma CVD reactor into an interior of the plasma CVD reactor.

10. The method according to Claim 9, wherein the cleaning gas is excited in a remote plasma chamber and introduced into the interior of the reactor.

11. The method according to Claim 9, wherein the electromagnetic waves are microwaves.

12. The method according to Claim 9, wherein the electromagnetic waves have power sufficient to facilitate reactions between unwanted products adhering to an inner surface of the reactor and the cleaning active species derived from the cleaning gas.

13. The method according to Claim 9, wherein the cleaning gas comprises a fluorine-containing gas.

14. The method according to Claim 9, wherein the cleaning gas comprises fluorine, fluorine trinitride, or a mixture of the foregoing.

15. The method according to Claim 9, wherein the cleaning gas comprises a fluorocarbon compound and an oxygen-containing gas.

16. The method according to Claim 9, wherein the cleaning gas comprises COF2.

17. The method according to Claim 9, wherein step (i) and step (ii) are simultaneously conducted.

18. The method according to Claim 9, wherein step (ii) is initiated prior to step (i).

19. The method according to Claim 9, wherein step (i) is initiated without step (ii), and then step (i) and step (ii) are conducted in parallel.

20. The method according to Claim 9, wherein step (ii) is initiated without step (i), and then step (i) and step (ii) are conducted in parallel.

21. The method according to Claim 9, wherein the cleaning active species are generated by an inductively-coupled plasma produced in a remote plasma chamber.

22. A method for manufacturing multiple substrates having films deposited thereon, comprising the steps of:

treating multiple substrates using a single-substrate processing plasma CVD reactor; and

initiating a cleaning cycle by (i) providing cleaning active species derived from a cleaning gas in the plasma CVD reactor, and (ii) emitting electromagnetic waves from an outside of the plasma CVD reactor into an interior of the plasma CVD reactor.